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# SOME NOTICES OF THE STATE OF HEALTH IN BOSTON DURING THE YEAR 1837.

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It is quite as difficult to account for the variations in the state of general health among the community in different years and seasons, as it is to explain the inequalities of the seasons themselves. We find one year to have been marked with the extensive prevalence of influenza, another by that of cholera or of scarlet fever. It is common to look for the causes of these epidemics among those conditions of things which are within reach of our observation, such as the temperature, the degree of moisture, the changes of decomposition in organized substances, the habits of living of the community, &c. Nevertheless it must be acknowledged that the most extensive causes of these, and many other diseases, are occult and inscrutable in their nature, and no man in the present state of medical experience, would gain much credit, who should associate the above mentioned epidemics in necessary connection with any fixed peculiarities of climate, seasons or customs. They at present rest on much the same grounds as the explanations of thunder and lightning, which were given before the discovery of electricity.

The last year has been one of uncommon exemption from any prevalent sickness. Although all our common diseases have, to a certain extent, been present among us, yet the number of persons affected by acute disorders of severe character, it is believed, has been unusually small. Of the cases which have occurred among classes comfortably situated, a greater portion than usual have resulted in recovery.

In the Massachusetts General Hospital, it appears from the records, that the number of cases of typhus, during the year 1837, was thirty-six. Every one of these has recovered, a circumstance without precedent in the history of that institution. The patients, as usual, have been brought in under all stages of the disease, and a considerable portion of them have been affected, for a time, with grave and threatening symptoms. A part of the cases, also, have been mild throughout their whole continuance. In private practice, moreover, during the year, a large majority of cases have been of a favorable character, though sometimes protracted in their duration.

Scarlet fever has prevailed to a less extent than usual. Malignant cases of this disease have occasionally occurred, but a greater portion have been extremely light. In the last year's bill of mortality for the city of Boston, the number of deaths reported by scarlet fever is thirty-nine. In 1832, the number of deaths reported by scarlet fever was one hundred and forty-nine; and by "throat distemper," probably in very many cases the same disease, fifty; making an aggregate of nearly two hundred deaths.

No disease has increased so much during the last year as acute rheumatism, or the form of the disease usually called rheumatic fever. Forty cases of this description have entered the hospital in the course of the last year; and yet this form of rheumatism was once a comparatively rare occurrence in the wards. In the city at large, it has also prevailed to a considerable extent. Among the hospital cases, the disease has, in numerous instances, affected the heart and pericardium, yet no death has occurred. The practice of treating the disease by opium, has been found abundantly useful as a palliative, but has not appeared to abridge the ordinary duration of the complaint. Patients have taken eight, ten, and twelve grains or more in a day, for some time, with the effect of keeping them free from pain, and in most instances without unpleasant consequences, one or two grains being given at the end of each hour, if the patient was not easy. Free perspiration has commonly followed its use. The disease, however, has gone through its ordinary metastases and period. In a few instances the opium was obliged to be discontinued, from its unpleasant effects.

Influenza, or *grippe*, which, in the cities of Europe, sometimes shuts up opera houses, and banishes a quorum from legislative assemblies, has, during the last year, given us little trouble. Measles, though always present, have not been attended with great fatality. The deaths last year were 23, whereas in 1835 they were 188. In the preceding year, 1834, only one death occurred from this disease. Cholera infantum has been more formidable than in the late preceding years, though the various names under which this disease is reported, render it difficult to arrive at statistical accuracy in regard to it. Croup has been less mortal, in proportion to the population, than it was five or six years ago. Consumption, the bane of northern climates, as is usual, takes precedence of all other diseases in the number of its victims. Its mortality, however, has this year been less than heretofore, amounting to about one in eight of the deaths. And compared with the mortality of the disease in England and France, which is much greater, it may justify the conclusion that our own climate, with all its instabilities and annoyances, is not absolutely the worst residence within the temperate zone.

The aggregate of deaths from other diseases and casualties, bears nearly its usual proportion to the population of the city. And as a matter of record, it will be recollected by those who are curious in such matters, that the year has been marked by a cold summer, followed by an open winter, and by a general deficiency of rain.

*Boston, Jan.* 23, 1838.

# ON INFLAMMATION.

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In several numbers of this volume of the Journal it has been shown that some of the most important organs of the body—organs, too, which have been held to be extremely complicated in their structure—are developed according to the mechanical laws of a fluid, the same with or analogous to electricity. The brain, the ear, the valves, and membranous septa generally, have been shown to be but parts of a simple and universal process; the revelation of which will rescue the science of life from that confusion and obscurity which have hitherto enveloped it, and will give to it the same exactness and precision that characterize the physical sciences. Other organs of the body are as deducible from the same laws as those which have been mentioned. But it would add very much to the strength of the argument if it could be made to appear that the diseased conditions depended on the same cause. The object of this article is, therefore, to treat of inflammation; and the basis on which I shall proceed is the circular spread, more or less regular, of inflammatory action.

The disposition of organic action to limit itself by a defined circular boundary, when it occurs on a membrane or a surface extended in the directions of length and breadth, is conspicuously marked in nearly every variety of vegetable and animal life. Vegetables present, on the surface of their stalks, leaves and flowers, maculæ, semilunar or circular spots, more or less perfect. They are found on many shells. On the skins of animals covered with scales, as serpents and fishes, they abound. The plumage of the most beautiful birds is often studded with them, as the peacock. Among quadrupeds, the leopard owes to them his superior beauty. In man, too, they are reproduced, in skin diseases, of a chronic character, where the action is sluggish and does not, in consequence of its intensity, mask this general tendency.

Does not this constant reproduction of the same form, amid so much diversity, declare the agency of some general law or principle in bringing it about? And if so, does not analogy warrant the inference that that agency is a fluid, since the impulsion of fluids against each other produces curvilinear motion?

A great amount of indirect evidence might be brought forward to prove the existence of such a fluid moving over the surface of bodies in planes parallel to the surface, and indeed through the membranous coverings of the different organs, and likewise in favor of the position that it is constantly diverging from the centre of organs and living bodies. From the point of attachment of the ligament of bivalves, colored rays in some instances, in others grooves and ridges, diverge towards the circumference, while folds and spines shoot up obliquely from the surface of the shell, in a direction apparently compounded of the diagonal, between one perpendicular, to the surface, and another perpendicular, to the apex. These spines and folds are convex towards the apex, whether their general form is cylindrical or not. Here are five strong facts explicable on this supposition; and on no other. Compare with these the facts that the skin is developed from behind forwards, following the course of the nervous influence from the spinal marrow; that the black color of the negro commences from a black stripe over the spinal marrow, and extends forwards; that zona or shingles pursues the same course; and also the action of mental emotions, as distension of the capillaries of the face from shame, permanent change of color in the hair from fear, and even in the skin of the negro, which has been known to spring from the same cause. All that shows the nervous system active in effecting changes in capillary action, confirms it so far as physiological experiments prove the nerves a vehicle for the transmission of galvanism or electricity.

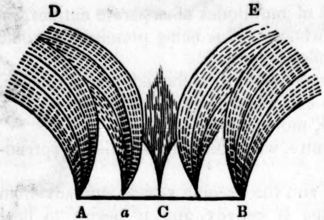
It will be found that the study of such inflammations as ringworm, lepra, and the vaccine vesicle, will throw more light on the nature of inflammation, than any method of investigation hitherto adopted. They are instances in which inflammation takes a regular form, and pursues a regular course, with but a trifling disturbance from modifying causes. Now if this regularity both of form and progress is strictly deducible from the mechanical laws of the fluid in question, and if we have a right to reason from what is regular to what is irregular, then is proof positive afforded of the dependence of inflammation generally on this fluid. And I believe it will be granted that such is the state of opinion on this subject at the present time, that all the objections that can be brought against this, or I had almost said *any* view which might be advanced, must be of a superlatively negative character. We know nothing of the nature of inflammation, over and above the fact that there is accumulation and obstruction of the blood in the part. To those who are willing to rest content with this, as the sum and substance of their knowledge, I have no desire to tender an invitation to read these pages. An extract from "McKenzie's 5000 Receipts," or "Buchan's Domestic Medicine," or from the supplement to the advertisement of Dr. Brandreth's pills, would be more in accordance with the taste of such contemners of "fine spun theories," and self-styled *practical men*—men who in all cases want to have the proof before the premises are stated, and cannot stay to hear these last, because the thing itself is not proved—men who are fond of Q. E. D.'s, and know them because they are capital letters at the end of long paragraphs. Those, on the contrary, who entertain some notion of "irritative excitement," of "increased action," or "debility of the vessels," thereby showing that their brains were organized to form a conception of something beyond the mere objects of perception, will not, it is hoped, find their time mispent, should they for an hour or two divest themselves of these words, and consider them but the shadows of ignorance, the coruscations of darkness when it renders itself visible, and after examining with candor and impartiality the views here presented, follow out the train of suggestions to which they are calculated to give rise. There is but one favor that I would ask of them, and that is this. Should the thought strike them that I am drawing inferences from far fetched analogies, will they ask themselves whether these analogies are the less just because they are far fetched; whether the idea itself does not spring up in their own mind from the habits which the common mode of education fosters, of contemplating the works of nature as composed of multitudes of separate entities, instead of parts of one stupendous whole. This being premised, I would direct their attention to the four following points.

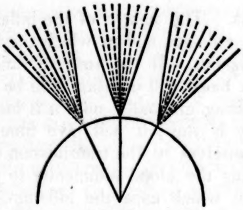
1. Lepra and ringworm commence with an inflamed point, whence, as from a centre, the inflammation extends equally in all directions.
2. Their disk is flat, or concave, more or less.
3. They begin to heal at the centre, while the inflammation is spreading at the circumference.
4. The areola around smallpox and the vaccine vesicle spreads from it as from a centre, but its surface is convex, and it begins to heal at the circumference.

The explanation I would offer is this. The centre of the inflamed spot is a focus from which the fluid radiates, and to which the fluid tends from the parts below and contiguous. If the rush of fluid to this point is rapid, its attraction for the blood will occasion it to be elevated and swollen, the elevation decreasing gradually, until it is lost in the surrounding skin. If the tendency is slow, it will give time for the parts beneath to accommodate themselves to the transmission of a given amount, without the fluid attracting the blood sufficiently to produce inflammation of the cutis vera, in which case the inflammation would be confined to the rete mucosum, or the vessels that secrete the cuticle.

The spreading from the circumference on a flat disk will be illustrated by a comparison with the development of a compound flower—a daisy or sunflower, for example. A greater pressure acting from within outwards, on the florets at the circumference, than on the central ones, is the occasion of their expanding into rays, which diverge from the centre. The cause of the increase of pressure of this fluid is, that the sum total of it in each floret exerts a pressure on each contiguous one, and forms, of course, an obstacle to its expansion laterally. But this pressure is removed from the external surface of the florets situated in the marginal ring, because there are no florets beyond them. There is, then, no obstacle to their expansion in a line perpendicular to the centre of the disk; hence they diverge, like rays, from that centre. The petals of double flowers, considered by botanists to spring from the evolution of the external stamens, show how extensive and general is the operation of the same force. Now each vesicle in a spot of lepra is just in the condition of one of these florets, and the pressure which they exert on each other being greater at all points than that which is exerted on their marginal surface, they will spread marginally. The reason of the healing process commencing at the centre and continuing while the inflammatory action continues around the border, is because the effect of a fluid radiating from all points of a circular flat disk, is to retard that portion coming immediately from the centre. This will be shown by the following diagram.

Let A B be considered any diameter of a flat inflamed disk, and the centre C a vesicle from which a brush of this fluid, C E D, proceeds, in a manner like the electrical brush from a charged conductor. Let *a* represent any number of vesicles between the centre C and circum-





ference A, from which similar brushes proceed. That part of the brush coming from each of these vesicles towards the centre intersects that coming directly from C, and retards its motion towards D. In like manner the brushes departing from the vesicles between C and B, interfere with that part of the brush from C towards E; and since there are a greater number of brushes to interfere with the one from C than from any other vesicle, the obstruction which they produce to the fluid passing from C is greater than that issuing from any other vesicle in the diameter A B, or any other diameter. If, therefore, the inflammation is kept up by a fluid passing off from these vesicles, it will cease at the point C first. In like manner it may be shown the fluid will be more obstructed in its passage from the points nearest to C than from those more remote, and the healing process will therefore continue from that point. If, now, in order to have it correspond with a convex inflamed areola, the line A C B, be raised at the centre, C, as is represented in the second figure, the interference of these pencils is less and less in proportion as the surface is more convex. It will therefore depend on the degree of convexity, other things being equal, whether the healing process commence at the centre or circumference. Hence we perceive, when inflammations of the skin assume a regular form, advance and recede in a regular manner, they are governed by laws which declare them to be the effect of the agency of this fluid.

An attentive examination of the circulation will, I think, convince any one that the powers which accomplish it are seated in the blood, instead of the contractions of the heart and arteries. In the lower animals and vegetables, circulation takes place without a heart. In the human fœtus, the blood begins to move at the circumference, and the heart is formed subsequently to the large arteries, and these subsequent the capillaries, as is clearly shown by the observations of Serres and others, and by the fact that the heart in monstrosities has often been found wanting, while the arterial system was developed; but the reverse, never. Irritation attracts the blood to the tissue irritated, without primarily affecting the contractions of the heart. The development of the pulmonary artery, and the obliteration of the ductus arteriosus, at the commencement of respiration, cannot be explained otherwise than by supposing the blood to be attracted to the lungs, rather than driven by the force of the heart. Again, injuries of the nerves affect the capillary circulation more than that of the heart.* Dr. Alison, of Edinburgh, and Dr. Hawley, have published some researches on the vital or self-moving powers of the blood, from which they consider the following propositions as established. "1. That the motion of the blood from the branches of the pulmonary artery to the left auricle, principally depends, neither on the systole of the right ventricle, nor on the tenacity of the vessels, nor on the respiratory motions, but on a living, self-moving power, acquired by the blood when renewed in the lungs. 2. That the same living power, inherent in the blood, is also a material cause of its motion through the capillaries of the aortic system. 3. That in acute inflammation, this vital, self-moving power of the blood is morbidly increased; while the tonicity of the capillaries is diminished. 4. That some formidable diseases of the heart, lungs and brains, usually considered primary, may be referred to an altered state of this vital power of the blood; and perhaps oftener to its diminution than its augmentation." To these conclusions I would subjoin a fifth, and that is, that the "vital, self-moving power" is the disturbance of equilibrium between this fluid, which takes place in the lungs, coinciding with the change from venous to arterial blood. The arterial blood is positive, and in the course of circulation gives off its excess of fluid to all the parts it comes in contact with; and the fluid, endeavoring to diffuse itself in all directions, tends towards those parts which are negative, or where it is less in quantity, and draws after it the blood.

If, then, the heart be supposed to be formed last, and we take the motions of the blood as our guide in forming a conception of the motions of this fluid, considering these latter motions to precede the former by an indefinitely small space of time, we must resolve them into two kinds, an undulatory or pulsatile, and a current corresponding to the motions through the arteries and veins. Now if there is an undulatory motion taking place from the centre towards the circumference of the vascular system, there must be a tendency to a vacuum formed at each undulation at the centre, and the fluid immediately around the centre would rush in to fill it. This tendency to a vacuum corresponds to the dilatation of the ventricle; and the blood coming from the pulmonary veins through the auricle, is attracted to the ventricle by the fluid rushing in from thence, which being most positive, is most strongly attracted thither. But no undulation of an elastic fluid can arise forwards without a return stroke or backward undulation. This return of the fluid from the circumference towards the centre, or backward undulation, produces the contraction of the heart, and the tissue composing the heart is deposited between the two undulations, and it is to this circumstance it owes its extreme sensibility, manifested by continuing its contractions when removed from the body, and renewing them on the slightest irritant being applied to its tissue.

By comparing the vibrations of the arteries with the vibrations of an elastic medium, as air in an unyielding tube, I shall endeavor to prove, at some future time, that it is in consequence of these vibrations, and the different directions in which the blood moves, that the continuity of the circulation is interrupted, and the shape and position of the heart determined. At present, I shall confine myself to noticing some facts which corroborate, in a striking manner, what has been advanced. The first is the conical shape and gyratory motion of the heart, corresponding to the little whirls or vortices produced in fluids by the collision of centripetal currents. The second is the spiral disposition of its muscular fibres, indicating, as all muscular fibres do, the course the fluid takes. But the most conclusive, is the circumstance that the heart is placed to the left of the median line, in man, whose nervous power is greater on the right, than on the left side; and in the molluscous animals that form the spiral shells, the spiral turns are made towards the side opposite that in which the heart is placed. Such a situation for the heart would follow from the supposition above. For if it is formed by the return stroke or backward undulation, it would be placed where these undulations, coming from all parts of the body, balance each other. And since there is more of the nervous fluid constantly existing on the right than on the left side, both its forward and backward impulse would be stronger in this direction, and the latter would in consequence pass beyond the median line before it was counterbalanced by the backward undulations from the left side. For the same reason the heart would assume, in the spiral univalves, a position further from the side where the development is greater, than from the opposite side. It should be mentioned, also, that the apex of the heart is turned away from the brain and from the spinal marrow, so that its position is in the line of a diagonal compounded of three forces, directed severally from the parts where the nervous influence is most concentrated, viz., the brain, the spinal marrow, and the right side. That this is not the effect of gravity, is clear from the fact that in quadrupeds the apex of the heart is turned towards the abdomen.

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* British and Foreign Medical Review, No. V., page 11.

But the question arises, what becomes of the excess of fluid in arterial over venous blood, that is dissipated in the course of the circulation? I answer, that it is communicated to all the tissues with which the arterial blood comes in contact, but more especially to the nerves, since they serve the purpose of conductors. From the capillaries, whether of the surface or of the internal organs, there is a continued radiation of this fluid, a part of which passes off, producing transpiration, secretion, &c., and the remainder is returned by the nerves. In the healthy state of the tissues, a certain relation is maintained between that which passes off and that which is reconducted to the internal parts by the nerves, or between both of these currents and the afflux of fluid along with arterial blood. This relation is interrupted in inflammation. The nerves cannot conduct it from a part with the same degree of rapidity that it is carried thither by the blood, when an irritant has been applied. It therefore accumulates in that part, and radiates, as from a centre, into the surrounding space, impelling the blood out of its natural course, forming a focus of inflammation, and producing a papula, vesicle, pustule, boil, carbuncle, or phlegmon. Or, to speak more definitely, an irritant is a conductor or non-conductor, and its application to a point excites a current from that point, either directly as a conductor, or indirectly from immediately around that point as a non-conductor, which current attracts the fluid from the neighboring parts, and this again attracting, or rather impelling, the blood as it moves through the particles, establishes a focus of inflammation. This action continues until such a change in the condition of the part arises, as restores the equilibrium between the conduction of the fluid there by the blood, and its reconduction into the system by the nerves. There must, then, be a tendency in the process of inflammation to diminish the flow of this fluid to the part inflamed, otherwise the inflammation never would cease to spread. Such must be the effect, if, as is supposed, it is derived from the obstruction to the motion of the red globules through the part, occasioned by their accumulation at or near the point, which constitutes the swelling and hardness around it. Since, then, the intensity with which the fluid tends towards the focus of inflammation diminishes in proportion both to the distance from it and the hardness of the inflamed part around it, and the capacity of the nerves to re-transmit increases in the inverse ratio* (allowing that the pressure of the accumulated blood tends to paralyze the nerves), a line may be conceived to be drawn through the points where the equilibrium, disturbed by the action of the primary irritant, is restored, circumscribing the inflammation, which line would advance towards the focus of inflammation, or recede from it, as the power of the nerves prevails over the inflammatory excitement, or the reverse. In the primary stage of inflammation it would recede, in the healing process it would advance.

It follows, from these considerations, that the space circumscribed by this imaginary line, including the focus of inflammation, possesses less conducting power than the parts adjacent. Now if this be the case, a force of pressure must be exerted by the fluid diverging from the centre of the body, where it is most concentrated, to the circumference, on that space, equal to the difference between its conducting power and that of the adjacent tissue, in the direction from the centre to the circumference. The pressure thus arising will be productive of one of two effects. Either it will remove the accumulation of globules whose diminished mobility obstructs its own motions, or it will remove the whole tissue. In the first instance, it acts in coincidence with the primary excited current, to produce suppuration ; in the second, it gives rise to sloughing.

There are, then, two circumstances which operate in the cure of inflammation. 1st. The impediment to the passage of this fluid, from the focus of inflammation, otherwise than by the nerves. 2d. The impediment to its passage towards the focus, by the obstruction of the movements of the globules in the capillaries, springing from their accumulation around it.

One of the causes of the first of these impediments is clearly shown by the considerations pointed out above, in relation to the progress and cure of inflammation on a flat disk. It is highly probable that another cause arises from the evaporation going on at the surface of the sore, which, removing always the more fluid parts, dries and hardens the surface into scabs, scales, &c., and lessens its powers of conduction. It is this evaporation (which I hold to be occasioned by the fluid passing off), which, according to the researches of Breschet and Vauzeme, forms the cuticle, and, by a parity of reasoning, the nails, hair and horns. Such a view is confirmed by the mode in which vegetables fructificate and develope buds in the axils of the leaves, if it be allowed that they are affected by the same agency. The current of this fluid going to a leaf, continuing the same while its conducting power is diminishing, in consequence of evaporation, an accumulation will take place, exerting retrograde pressure, which acting at the base of the footstalk, at the point where the current passing up towards the leaf and that moving up the main stalk divide, creating a tendency to a vacuum, developes there the bud. This will be best understood by a diagram. If in consequence of an attraction exerted at B and C, the currents be excited from D to B and C, they tend to produce a vacuum at D. If, on the contrary, a force acting at A impels a current up the tube, its tendency is to produce pressure at D. Now the two currents, D B, D C, excite a current along A D, which, when once excited, has a force of inertia which may be said to be acting from A. This force does not diminish so fast as the attractive force at B and C. Therefore when a cause occurs to diminish the forces at B and C, that acting from A will come into play. If the figure represent a tree, the primary force taking place at the circumference of the leaves, as is the fact, and ceasing before the secondary, gives a reason for the formation of buds in the axils of the leaves. For the same reason, when the conducting power of the petals is diminished, an accumulation will arise at their bases, which expands the tissue and attracts the nutritious materials there, until it forms the fruit. We may, by an extension of the same principle, account for the growth of the roots of vegetables, considering them as the reflection of the branches; of the fangs of teeth, as the reflection of the crowns; of the secondary teeth, as the reflection of the first; the stem and tubular part of the feather, as the reflection of the vane; the external ear, as a reflection of the internal; all that portion of the eye anterior to the iris, as a reflection of that posterior to it; the brain, as the reflection of the nerves; the heart, as we have seen, as the reflection of the small vessels; and, universally, the last developed part of an organ, or the last developed organ of a system, but a reflection of the first, or that on which the impressions to which they have relation, are primarily made.

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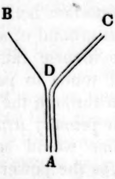
* In the same ratio, if we reckon from the focus of inflammation.



Hence we arrive at the same conclusion, whether we follow observation, or trace the consequence of inflammation from the laws of this fluid considered as the agent concerned in producing it, viz., that it has a tendency to heal itself. Again, the prominent phenomena of inflammation harmonize with the view that has been taken. There is a disposition to inflame in those parts which have been deprived of their nervous influence, either by section of the nerves, or paralysis, from the action of slight irritating causes. How well is this fact explained on the supposition that this fluid is attracted to the irritated spot, from the channel of the arterial blood, faster than it can be conducted away by the injured nerves and parts adjacent. In like manner the defective nutrition and calorification of a paralyzed limb is accounted for because the centripetal nervous current being less, there is less attraction exerted, in the absence of any irritant on the arterial blood. If, also, it is true, as has been observed, that organs scantily supplied with nerves are more liable to congestion than others, the reason for it is obvious.

The red line around a gangrenous limb is just what ought to happen if this is the correct view, for the mortified part being a non-conductor, the fluid must accumulate in the contiguous living part, and diffusing itself faster than it can be conducted into the system, will radiate from the surface, and produce inflammation, prescribed by the condition mentioned above, while the pressure of the fluid acts to separate the dead from the living portion. That action which disposes inflamed parts to open externally, regarded as inexplicable on any former theory of inflammation, is but a part of the same process with that which throws off a gangrenous part. It is the consequence of the fluid being more concentrated internally, and therefore tending towards the surface, and carrying with it whatever interferes with its motion.

All the changes witnessed in the maturation of a pustule, are what we might expect on the same supposition. First, the accumulation of blood, constituting the pimple—the primary effect of the current excited. Second, the elevation of the cuticle, and the passage thither of the most fluid part of the blood, forming a vesicle. Third, the passage of the less moveable parts or globules of pus would take place, as the consecutive effects of a fluid moving towards the apex of the pustule, through the inflamed part. Healthy granulation may be easily conceived to be the result of the activity of the centripetal currents, combined with the external pressure, the former removing, on the internal side, the globules which are partially obstructed, and there deposited during the healing process, and the latter gently urging the circles into the ulcerated space and gradually supplying the loss of substance sustained. Erythematic erysipelas is but a reproduction of the papula on a large scale. Œdematous erysipelas bears the same relation to the vesicle, and phlegmonous erysipelas to the pustule. They are all the effects of a greater or less degree of determination of blood to the skin from the same cause. The looseness of texture beneath the skin is the reason of the effusion there, instead of on its surface, and this effusion may be referred to the same law which develops the secondary parts of organs after the primary, as already referred to.

To prevent misconception, I would here allude to a statement made above, that this pressure on the nerve tends to paralyze it, which taken in connection with another, that the relation between the external radiation and centripetal currents of this fluid is disturbed, might lead to the opinion that I thought the centripetal current was less in inflammation than in the natural state of the part. This, however, is the opposite from what I believe to be true, when inflammation, strictly speaking, is established. The current on the whole may be greater than natural, and still less in proportion to the external. At the same time the nervous fibres, where the pressure is greatest, may be palsied, while those adjacent are stimulated to an increase of their function. Besides, inflammation follows not necessarily from a loss of balance between the two currents. Since the sum of both being the same, if the natural relation between them be destroyed, no accumulation will arise, and therefore no inflammation. The loss of this balance predisposes to inflammation, rather than actually excites it, inasmuch as it is while the balance is being restored that accumulation is likely to take place, and with it inflammation.

When a part is frozen, the application of cold will prevent subsequent inflammation. The reason for this is, that cold palsies the nerves, or, in other words, the fluid radiates so fast that the centripetal current is destroyed in a given extent, while in consequence of the radiation a greater amount than usual is directed to the part. A trifling degree less of cold must now be applied to the dead or frozen part, so that radiation continuing to nearly an equal extent, no accumulation of the fluid will take place while the centripetal current is slowly re-establishing itself in the part. Hence the good effects of cold in inflammations generally. It is an irritant, when it produces so much radiation as to establish a current outward of greater relative intensity than the centripetal. It is a sedative, when it prevents that accumulation of the fluid which would give rise to inflammation, and which is prone to take place as a consequence of reaction. The condition of a frozen part thus bears the same relation to the sound part immediately contiguous, as would that of a gangrenous part, viz., that of a non-conductor ; but with this difference, that the application of cold renders it more or less a conductor, and may be made to abstract the fluid as fast as it tends towards the part. As an additional circumstance in favor of this view of the action of cold, it might be observed that crystallization, which is synonimous with freezing, is regarded, by some of the highest authorities in chemistry, to depend on the passage of electricity in currents through the particles of matter.

Did space allow, I would notice some objections that would naturally suggest themselves to the mind in perusing what has been advanced. Perhaps on some points I may not have been sufficiently clear, from a desire to compress as much as possible into the compass of a few pages. Some difficulties would be removed by bearing in mind the disposition of an elastic fluid to vibrate to and fro, when it accumulates, and perhaps it is these vibrations, in small spaces, among the particles of animal matter, which effects the composition and decomposition of parts. It should be borne in mind, also, that all the phenomena of radiation of light and heat are explained equally well on the supposition of undulations of an elastic medium, and on that of the actual emission of particles, and either view is applicable to the case in hand.

*Boston, January*, 1838. BENJAMIN HASKELL, M.D.

## QUESTIONS IN MEDICINE.

*To the Editor of the Boston Medical and Surgical Journal.*

Sir,—There are some discrepancies, or *prima facie* contradictions, in medical practice, which I should like to see explained or reconciled. For instance, in sanguineous engorgements of the uterus, we are directed to apply leeches to the vulva to lessen the quantity of blood and to take off its determination to the part; and, on the other hand, when we wish to increase the quantity or produce a determination to the uterus, we are directed to apply leeches—the same remedial means for apparently opposite indications of disease. In various external and internal inflammations, we are directed to apply warm fomentations or poultices to produce resolution; and yet when we wish to promote suppuration, we are advised to apply warm poultices, &c. It seems to me that rules more special and discriminate should be laid down and followed with respect to both hot and cold applications, and I hope the subject will receive further notice. Medicus.

## QUESTIONS IN ANATOMY.

*To the Editor of the Boston Medical and Surgical Journal.*

Sir,—Will some one of your numerous correspondents answer the following questions. They are suggested by a notice in the 23d No. of the present Vol. of your valuable Journal, of the "ingenious explanation" of the modus operandi of narcotics in dilating the pupil, by Mr. Walker.

1st. What evidence have we that the third pair of nerves enters into the formation of the lenticular ganglion?

2d. Does muscular motion, in *any* instance, depend upon influence conveyed by nerves of common sensation?

3d. Is the iris muscular?

4th. Is Mr. Walker's explanation "ingenious"?

The inquirer is after truth. Yours, &c.

*Franklin, Vt., Jan. 19th*, 1838. A Subscriber.

BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, JANUARY 31, 1838.

## BOYLSTON PRIZE QUESTIONS.

**A reference was made last week to Dr. Holmes's dissertations. We are now prepared to speak with decided approbation of his investigations. Every page gives abundant evidence of his thorough acquaintance with each subject proposed to him by the committee, and he moreover clearly exhibits a degree of patience and perseverance alike creditable to himself and the profession. In this country it rarely happens that a physician can devote sufficient time to the study of diseases to make himself**

good authority, and hence foreign writers, with a few honorable exceptions, are the oracles which are usually consulted. This is partly owing to the supposed necessity by which every practitioner is more or less influenced, of attending so closely to the details of business, that he is excused from the labors of pathological inquiries: by general consent, therefore, some are considered only writers, or qualified for being observers of the phenomena of disease; whilst others, taking them for unerring guides, have no higher responsibility than to prescribe according to custom and the sanction of authors.

From the exhibitions of talent which Dr. Holmes has given in these essays, his future course will be watched with interest. He cannot be insensible to the popularity of the first prize dissertation on *Intermittent fever in New England*, which was widely distributed by the munificence of an individual of Boston. The volume now embodying the three papers, cannot well be dispensed with in a medical library—because he has become native authority. It is this latter character which gives peculiar value to his writings. The decision of the Boylston Committee, a medical tribunal entitled to perfect confidence, in awarding the prizes to Dr. Holmes, gives an official assent to the excellency of each production, which after years will confirm and strengthen.

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*Counsellor's Meeting.*—It will be seen, by Dr. Homans's notice on our advertising page, that the Counsellors of the Massachusetts Medical Society will meet on the 7th day of February, at the Athenæum. Fellows residing in the country, district societies, and all others having business to transact with the Council, will have ample time to prepare. It is desirable that there should be a full board, and every section of the Medical Commonwealth fully represented.

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*Medical Lectures in Boston.*—The term closed at the Massachusetts College yesterday. Probably there are a considerable number of candidates for degrees, and whenever their names are announced, the catalogue will be given. It is a very important era in the life of a medical student, to assume the cares and responsibilities of a practitioner of medicine, and should not be entered upon without a deep sense of all its bearings, as it relates to society and his own individual happiness.

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*Worcester District Medical Society.*—Very judicious arrangements have been made, we hear, for reading papers, and collecting facts to advance the interest and usefulness of the profession, in that section of country. The plan is excellent: the wonder is that nothing of the kind has been done before. It will not only be productive of good fellowship and professional courtesy, but it will inspire a degree of confidence in those who know how important it is for physicians to agree amongst themselves. Happily for the present age, in New England, those feuds, petty jealousies, and rivalries, which were thought to characterize practitioners of medicine, have in a great measure passed away. Just so long as medical societies are cherished in the true spirit which called them into existence, good faith, generous feelings, and honorable, high-minded intercourse, conducive to the elevation of the profession, will assuredly be maintained.

*Shocking Mistake.*—The Baltimore American relates that a respectable physician prescribed for a lady of that city, who had recently recovered from illness, an ounce of the *phosphate of soda*, and wrote his prescription so that it was thought there could be no mistake. The messenger returned from the apothecary with the *white precipitate of mercury!* The patient, in fear of some mistake, refused to take the medicine till it had been sent back to the apothecary to ascertain for a certainty that the prescription was understood: the medicine was re-examined by him, and the decision was that it was correct. The dose was then swallowed, but with fatal effects. Notwithstanding every effort, the poor victim died on the following Sunday.

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*The Natural History of Man.*—In the last number of the American Journal of Science, a correspondent of the editor is very urgent to obtain all the facts which can be obtained on the subject of the tracks of human feet which have been discovered on rocks, in various sections of this country. He intimates that it is possible to prove, by these singular evidences, that man existed at a much earlier period on this globe than geologists have heretofore supposed. Any specimens, therefore, bearing such impressions, or descriptions of them, in localities not heretofore chronicled, directed to Professor Silliman, will be peculiarly interesting, and greatly serve the cause of science.

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*Tubercles in various Organs, without any Tubercular Formation in the Lungs.*—The law established by M. Louis, that, after the age of fifteen, tubercles are never found in any part of the body, without also existing in the lungs, admits of very few exceptions. M. Louis himself has only met with one. We extract the following from a late number of the "Bulletin Therapeutique," remarking, however, that the state of the bronchial glands is not noticed.

"A negro, eighteen years of age, was received, on the 6th of March last, into one of the surgical wards of the Hopital Beaujon, for a fistulous opening in the region of the sternum. The boy died suddenly, and on examining the body, tubercular abscesses were found in the eyelids, and several other parts of the body; there were softened tubercles in the prostate and right testicle; crude tubercles in the ribs, under the pleuræ, and in the brain, but none in either lung, liver, or spleen."—*London Lancet.*

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*Medical Miscellany.*—Dr. Consigny, of St. Damas, and Dr. Duvert, of St. Charles, have both surrendered to government, being patriots, and are now in prison.—The cholera has wholly disappeared at Constantinople.—The plague has become truly frightful at Odessa.—Total mortality of Baltimore, in 1837, 2114. *Fifty-two* died of smallpox, one hundred and thirty-four of *scarlet fever*; consumption, 396; measles, 141; stillborn, 196; and of infantile diseases, 516.—A tooth, it is said, was extracted from a young lady at Lynn, the other day, while under magnetic influence, without her manifesting any signs of pain or uneasiness. Dr. Fisk, of Salem, was the operator.—The number of deaths in New Haven, Ct., the last year, was 250.

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Died,—In Wrentham, Mass., Dr. Luther W. Sherman, aged 33—a skilful practitioner, and the writer of several valuable communications to this Journal.

**Whole number of deaths in Boston, for the week ending Jan. 27, 30. Males, 21—Females, 9.**

Consumption, 6—inflammation of the lungs, 1—dropsy, 1—convulsions, 1—teething, 1—scarlet fever, 1—catarrh, 1—lung fever, 1—infantile, 1—disease of the head, 1—dropsy in the head, 1—stoppage in the stomach, 1—old age, 2—fits, 1—measles, 1—rupture, 1—spasmodic fits, 1—disease of the heart, 1—inflammation of the bowels, 1—croup, 1—hæmorrhage, 1—fever, puerperal, 1—accidental, 1—stillborn, 4.

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## MASSACHUSETTS MEDICAL SOCIETY.—COUNSELLORS' MEETING.

A STATED meeting of the Counsellors of the Massachusetts Medical Society will be held at the Society's Room, Athenæum Building, in Pearl street, on WEDNESDAY, the 7th day of February next, at 11 o'clock, A. M.

JOHN HOMANS, *Rec. Sec'y.*

*Boston, Jan. 23.* eptm

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## MEDICAL INSTRUCTION.

THE subscriber proposes to take a few medical students, and to connect a small school with his private establishment for the treatment of invalids and for surgical operations. He has procured convenient rooms, and has secured the necessary facilities for anatomical inquiries and demonstrations. His pupils will also have the privilege of witnessing such interesting and important cases as occur in the private practice of a country physician and surgeon.

JOSEPH H. FLINT.

*Springfield, January,* 1838. Jan. 17.

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## FALLING OF THE WOMB CURED BY EXTERNAL APPLICATION.

DR. A. G. HULL'S UTERO-ABDOMINAL SUPPORTER is offered to those afflicted with *Prolapsus Uteri, or Falling of the Womb*, and other diseases depending upon a relaxation of the abdominal muscles, as an instrument in every way calculated for relief and permanent restoration to health. When this instrument is carefully and properly fitted to the form of the patient, it invariably affords the most immediate immunity from the distressing "*dragging and bearing-down*" sensations which accompany nearly all cases of visceral displacements of the abdomen, and its skillful application is always followed by an early confession of radical relief from the patient herself. The Supporter is of simple construction, and can be applied by the patient without further aid. Within the last three years nearly 1500 of the *Utero-Abdominal Supporters* have been applied with the most happy results.

The very great success which this instrument has met, warrants the assertion, that its examination by the physician will induce him to discard the disgusting Pessary hitherto in use. It is gratifying to state that it has met the decided approbation of Sir Astley Cooper, of London, Edward Delafield M.D., Professor of Midwifery, University of the State of New York, of Professors of Midwifery in the different Medical Schools of the United States, and every other Physician or Surgeon who has had a practical knowledge of its qualities, as well as every patient who has worn it.

The public and medical profession are cautioned against impositions in this instrument, as well as in Trusses vended as mine, which are unsafe and vicious imitations. The genuine Trusses bear my signature in writing on the label, and the Supporter has its title embossed upon its envelope.

AMOS G. HULL, Office 4 Vesey Street, Astor House, New York.

The Subscribers having been appointed Agents for the sale of the above instruments, all orders addressed to them will be promptly attended to.

LOWE & REED,
24 Merchants Row, Boston.

Jan. 3. lyreop

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## TO MEDICAL STUDENTS.

THE undersigned are associated for the purpose of instructing in all the branches of Medicine and Surgery. A suitable room will be provided, and pupils will have the use of an extensive medical library, opportunities for seeing the practice of one of the districts of the Dispensary and of the Eye and Ear Infirmary, and of attending a course of lectures on the diseases of the eye.

A regular course of recitations and examinations will include all the required professional works. Anatomical instruction and private dissection will form a prominent part in the study of the pupils. For further information, apply to either of the subscribers.

JOHN JEFFRIES, M.D.
R. W. HOOPER, M.D.
JOHN H. DIX, M.D.

*Franklin Street, Nov.* 9, 1836. July 19—6m

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## MEDICAL INSTRUCTION.

THE subscribers have associated for the purpose of giving medical instruction. A convenient room has been provided for this purpose, which will be open to the students at all hours. They will have access to an extensive medical library, and every other necessary facility for the acquirement of a thorough medical education.

Opportunities will be offered for the observation of diseases and their treatment in *two* Dispensary districts, embracing Wards 1, 2 and 3, and *in cases which will be treated at the room daily.*

Instruction will be given by clinical and other lectures, and by examinations at least twice a week.

Sufficient attention will be paid to Practical Anatomy.

For further information, application may be made at the room, over 103 Hanover street, or to the subscribers.

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E. WALTER LEACH, M.D.
HENRY G. CLARK, M.D.
JOSEPH MORIARTY, M.D.

*Boston, August* 9, 1837.

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